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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,010	06/05/2006	Mitsuhiro Kasai	512.45517X00	6264
20457 7590 08/07/2008 ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873				
EXAMINER LENIHAN, JEFFREY S				
ART UNIT		PAPER NUMBER		
4171				
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08/07/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/552,010

**Applicant(s)**

KASAI ET AL.

**Examiner**

Jeffrey Lenihan

**Art Unit**

4171

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/DE)  
Paper No(s)/Mail Date 06/09/2006, 01/10/2008
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 6 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claim has not been further treated on the merits.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
4. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita et al, JP 11-116763, in view of Kanimori et al, WO02/085985. A machine translation of JP11-116763 has been utilized in preparing the rejections contained in this Office Action, and has been included herein. Additionally, Kanamori et al,

US20040127631, is the publication of the National Stage entry of the PCT application corresponding to WO02/085985 in the United States and has been used herein as an equivalent English translation of WO02/085985.

5. Claim 1 recites a curable composition comprising a polyoxypropylene polymer having a cross-linkable silicon group in a molecule (A), a (meth)acrylic acid ester polymer having a cross-linkable silicon group in its side chain (B), and a (meth)acrylic acid ester polymer having a cross-linkable silicon group only at the terminal (C).

6. Fujita discloses a composition intended for use as an elastic sealing compound for construction (§0002) comprising a first polymer comprising a polyether containing at least one cross-linkable silyl group and a second polymer prepared from vinyl monomers and containing at least one cross-linkable silyl group (§0005). Fujita states that the polyether containing cross-linkable silyl groups is preferably polypropylene oxide (§0046), corresponding to polymer (A) as described in the composition of the instant claim. Said second polymer is prepared via polymerization using an initiator or chain transfer agent containing a cross-linkable silyl group, the result being that the cross-linkable silyl group will be incorporated in the vinyl polymer as terminal functional groups (§0003, 0013). Fujita discloses (meth)acrylates and styrenes as illustrative examples of the vinyl monomers which may be used to prepare the vinyl polymer containing cross-linkable silyl groups (§0007), corresponding to polymer (C) in the composition of the instant claim. Examples 1 and 2 of Fujita disclose a composition comprising poly(n-butyl acrylate) containing terminal cross-linkable silyl groups and

poly(propylene oxide) containing terminal cross-linkable silyl groups (page 23 of translation, lines 5-18).

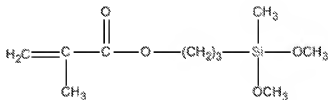
7. Regarding claims 2 and 3, claim 2 depends from claim 1, and recites the limitation that the polymer (C) is prepared by living radical polymerization. Claim 3 depends from claim 2, and states that atom transfer radical polymerization is used to prepare the polymer (C). Fujita discloses that the polymer comprising vinyl monomers and containing cross-linkable silyl groups is prepared via an atom transfer radical living polymerization system (§0016-0017, claim 8), as described in the instant claims.

8. Claim 4 depends from claim 1, and recites the additional limitation that the polymer (B) is obtained by polymerizing a (meth)acrylic acid ester monomer containing a polymerizable monomer having a methyl ester group.

9. Claim 5 depends from any one of claims 1 to 4, and recites the additional limitation that the molecular weight distribution of the polymer (B) is at least 1.8 and the molecular weight distribution of the polymer (C) is at most 1.8. Fujita discloses that the molecular weight distribution of the vinyl polymer corresponding to component (C) of the instant claims is preferably less than 1.8 (§0009).

10. Fujita discloses the preparation of compositions comprising a poly(propylene oxide) containing cross-linkable silyl groups and (meth)acrylate polymers containing terminal cross-linkable silyl groups. Fujita does not disclose the addition of a (meth)acrylic acid ester polymer having a cross-linkable silyl group in its side chain corresponding to component (B) of the composition of the instant claims.

11. Kanamori discloses the production of curable polymer compositions comprising a vinyl polymer having a reactive silicon-containing group and a polyoxyalkylene polymer containing reactive silicon-containing groups (abstract). These compositions are disclosed to be useful as architectural sealants (§10004). Synthesis example 1 of Kanamori et al discloses the synthesis of a vinyl polymer containing reactive silicon-containing groups from a mixture of methyl methacrylate, butyl acrylate, stearyl methacrylate, and  $\gamma$ -methacryloxypropylmethyldimethoxysilane, the structure of which is shown below (§0155-0156).



The examiner notes that incorporation of  $\gamma$ -methacryloxypropylmethyldimethoxysilane into the polymer chain would occur through the carbon-carbon double bond, and the resulting polymer would contain the reactive silicon-containing group in its side chain, corresponding to the polymer (B) in the composition of the instant claims. The use of methyl methacrylate as a monomer provides the methyl ester group recited in claim 4. Kanamori discloses that this vinyl polymer is typically prepared by ordinary radical polymerization techniques yielding a molecular weight distribution of not less than 1.8 (§0073), corresponding to the recited limitation that component (B) has a molecular weight distribution of at least 1.8 in claim 5.

12. Synthesis example 2 of Kanamori discloses the synthesis of a polyoxypropylene containing reactive cross-linkable silicon-containing groups, corresponding to polymer (A) in the composition of the instant claims. Said polyoxypropylene having reactive silicon-containing groups is combined with the polymer prepared in Synthesis example 1 (¶10157) to prepare a composition comprising a polyoxypropylene having reactive cross-linkable silicon-containing groups, corresponding to polymer (A) of the instant claims, and a (meth)acrylic polymer containing reactive silicon-containing groups in its side chain, corresponding to polymer (B) of the instant claims.

13. As noted in this Office Action, Fujita teaches the preparation of a composition comprising polyoxypropylene containing cross-linkable silyl groups and a (meth)acrylate polymer containing terminal cross-linkable silyl groups for the purpose of making sealants for construction purposes. Furthermore, it was also known in the art that a composition comprising polyoxypropylene having cross-linkable silicon-containing groups and a (meth)acrylate polymer having cross-linkable silicon-containing groups in its side chain could be used as an architectural sealant, as taught by Kanamori. MPEP § 2144.06 [R-6] states that "It is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980). As both compositions were known in the art as suitable for use as architectural sealants, the examiner takes the position that it would have been *prima facie* obvious to one of

ordinary skill in the art at the time the invention was made to combine a first composition comprising polyoxypropylene having cross-linkable silicon-containing groups and a (meth)acrylate polymer having cross-linkable silicon-containing groups in its side chain with a second composition comprising polyoxypropylene having cross-linkable silyl groups and a (meth)acrylate polymer having terminal cross-linkable silyl groups to prepare an architectural sealant comprising polyoxypropylene containing cross-linkable silyl groups, a (meth)acrylate polymer containing terminal cross-linkable silyl groups, and a (meth)acrylate polymer having cross-linkable silicon-containing groups in its side chain.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Lenihan whose telephone number is (571)270-5452. The examiner can normally be reached on Mon-Thurs: 7:30-5:00, every other Friday 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D. Lawrence Tarazano can be reached on 571-272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Art Unit: 1796

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ling-Siu Choi/  
Primary Examiner, Art Unit 1796

Jeffrey Lenihan  
Examiner  
Art Unit 4171

/JL/